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throughout, if one does not object to the fact, evident on every page, that the author has something to sell.

Patents on inventions: a quarterly patent-law review. H. CONNETT and A. C. FRAZER, editors. Vol. i. New York, *Burke, Frazer, & Connett*, 1884. 12+214+12 p. 12°.

THIS is a collection of short essays on points of interest to inventors. These essays are

principally written by the members of the firm of Burke, Frazer, & Connett, patent solicitors, in the intervals which their practice allowed. The articles are generally well written; but to some extent the smack of the advertisement clings to them, although none close with the advice to call on Messrs. Burke, Frazer, & Co., for a solution of the difficulties discussed. Throughout, the beauties of patents are upheld, and the *ignis fatuus* of a valuable patent is made as alluring as possible.

INTELLIGENCE FROM AMERICAN SCIENTIFIC STATIONS.

GOVERNMENT ORGANIZATIONS.

Geological survey.

Field-work in the division of the Pacific.—In addition to the office-work of this division, carried on during the winter at San Francisco, field-work has also been prosecuted, especially since the 1st of January. During February, Mr. George F. Becker, geologist in charge, studied the surface-geology of the area lying between Mount St. Helena and Knoxville, in Napa and Lake counties, Cal.,—a region that had previously been mapped by Mr. Hoffmann, topographer, and in which Mr. Turner spent some time, especially in January of this year. The mines of this district have been made the especial subject of study by Mr. Becker; and they prove to be of very considerable interest, lying, as they do, between a highly metamorphic area and one of unaltered sedimentary rocks, which is also marked by limited basaltic eruptions. The structure of Mount St. Helena has also been partially examined. During January, also, Mr. Hoffmann's field-work for the map of the New Idria district was completed for the illustration of Mr. Becker's monograph on the quicksilver deposits.

Map of Mount Shasta.—Mr. Gilbert Thompson has just completed a sketch-map, on a large scale, of Mount Shasta. It includes about seventeen square miles, and shows beautifully the glaciers and moraines of the mountain. As already noted in *Science*, Mr. Thompson has recognized some seven glaciers on the upper slopes of Shasta. On this map five of them are named as follows: the 'Whitney' glacier is on the north-west side, lying to the eastward of the volcanic crater (Shastina) that forms so prominent a feature of the north-west spur as seen from the valley below. It extends two or three miles from the summit toward the north-west, with a width in most places of less than a quarter of a mile. This is the glacier seen and explored in 1870 by Mr. Clarence King. The next glacier, as one proceeds eastward, is the 'Bulam' (or great) glacier, which extends to the northward or north-westward about a mile and a half. It is nearly a half-mile in width, and at its head appears to be connected with the 'Hotlum' (or steep rock) glacier, which lies next to

it on the north-east slope of the mountain. The latter is broad, being almost a mile across, and reaching only about a mile and a half from the summit. On the eastern side of the peak is the Win-tún glacier (so named from the tribal designation of the Indians of the vicinity). It is nearly two miles long, with an average width of about half a mile. On the south-east slope is the Kon-wa-ki-ton (or Mud Creek) glacier, which, until Mr. Thompson described it, was unknown, although many of those who have climbed the peak since 1854 must have passed close by it. It is smaller than the others, having a length of only a half-mile. Its width is about a quarter of a mile. Mr. Thompson has furnished very full notes of these glaciers to Mr. I. C. Russell, by whom they will be published in the reports of the survey.

On another map being prepared by Mr. Thompson, Mount Shasta and the surrounding country are shown on a smaller scale than in the above-mentioned map; and the isolation of Mount Shasta is well shown. It forms no part of any mountain range; and the highest land within a radius of forty-five miles from its summit is Mount Eddy, which is fifteen miles distant, and is at least six thousand feet lower.

Ice-banners.—In Tyndall's 'Forms of water' is an illustration representing what he terms 'cloud-banners,' which are formed by a current of warm air, charged with moisture, passing a high and sharp mountain point, when, meeting with a colder atmosphere, it is condensed, and forms a visible cloud, the appearance of which has some resemblance to a banner. On Oct. 18, 1882, Mr. Gilbert Thompson ascended Lassen's 'Butte' (or Peak), in California, which has an altitude of 10,500 feet above sea-level; and on Oct. 12, 1883, he made the ascent of Mount Shasta, which rises to the altitude of 14,511 feet, some seventy miles farther to the north-west. On the summits of these peaks, and on both occasions just after a storm, Mr. Thompson observed what he terms 'ice-banners.' The iron signal-post on Mount Shasta, which rises sixteen feet above the summit, had the appearance often seen in trees, posts, etc., after severe snow-storms, when the flying snow is impacted against them by the wind, except that in this case the projection was just reversed, and lay from the wind. On the signal-post the 'banner' projected

nearly four feet at the top, becoming narrower towards the base. Mr. Thompson has also observed the same phenomenon on sharp rocks and sticks. Ice-banners are evidently formed from the vapor of passing

clouds; and an observer favorably situated might watch their formation and growth. He thinks that possibly the base of a cloud-banner might be found to be an ice-banner.

RECENT PROCEEDINGS OF SCIENTIFIC SOCIETIES.

American society of civil engineers.

April 16. — A paper was read by Hamilton Smith, jun., upon the temperature of water at various depths in lakes and oceans. The results of observations upon bodies of water in California, in the eastern states, and in Switzerland, were collated, and also the temperatures obtained in deep-sea soundings; all of which show that very slight variations in temperature occur at great depths, and also that great variations in surface-temperature affect the deeper waters only after a long interval, and that even in comparatively shallow reservoirs there is great uniformity in temperature, at even moderate depths, as compared with the variations in its surface.

Brookville society of natural history, Indiana.

April 8. — A. W. Butler presented a paper upon some explorations among the ruins of San Juan Teotihuacan, near the City of Mexico, illustrated by maps of that region, showing its topography. He described the appearance of the pyramids, the 'House of the sun,' and the 'House of the moon,' and gave the results of his investigations of the manner of their construction, and the excavations near them. A description of the so-called 'Micoatl,' 'Path of the dead,' and its relation to the 'House of the moon,' were given. In conclusion, he mentioned a large sacrificial stone found near the 'House of the moon,' which he illustrated by drawings of the front and top. — Edward Hughes read a short paper upon the rats of Franklin county. — A. W. Butler gave a short paper on the tornado of March 25, which he illustrated by maps, showing its course through the eastern part of Franklin county (Indiana), and the destruction it caused at Scipio, Ind.

Torrey botanical club, New York.

April 8. — Mr. Arthur Hollick read a paper upon autumn forms of the genus *Viola*. While engaged in studying the cleistogamous flowers of *V. cucullata* and *V. sagittata*, many other species were brought under notice, and important differences remarked in leaf, flower, and stem, which do not seem to have been previously reported. *V. cucullata* and *V. sagittata* are connected by every conceivable intermediate form of leaf variation and superficial characteristics, and *V. palmata* also connects with the former by insensible gradations. *V. cucullata* and its varieties are, however, distinguishable from either of the others mentioned by the decumbent habit of the cleistogamous flowers. In *V. sagittata*, on the other hand, the cleistogamous flowers are invariably erect. For some time it was difficult to know whether *V. palmata*

was allied to *V. cucullata* or *V. sagittata*, but the appearance of the intermediate forms points to the former as the type. The three species of white violets — viz., *V. blanda*, *V. primulaefolia*, and *V. lanceolata* — are very closely allied, intermediate forms between the latter two being impossible to place accurately with either species. All three produce runners or stolons late in the season; but in *V. blanda* these runners are merely roots, being almost entirely under the surface of the ground, slender, and producing few or no leaves, and no cleistogamous flowers. The flowers grow from, or close to, the main root-stock, and are more or less decumbent. *V. primulaefolia* has the longest runners, some as much as twelve inches in length. They are comparatively stout, run along the surface of the ground, and are mostly leaf and flower bearing throughout. *V. lanceolata* will probably have to be referred to the same species as the latter. An important point to be noted is, that *V. primulaefolia* and *V. lanceolata* almost invariably grow in company with each other, while *V. blanda* generally occurs alone, and in different locations from the other two. These violets have three methods of propagation, — by petalous flowers in early spring, by apetalous flowers in the autumn, and by runners rooting at the nodes or joints. *V. odorata* produces both leafy runners and cleistogamous flowers; but the flowers are clustered around the main stem, instead of being on the runners. They are depressed upon short peduncles, and are sometimes almost subterranean. In *V. canina*, var. *sylvestris*, the cleistogamous flowers have peduncles not more than two inches long, generally less, while the others are from three to four inches in length. Also, while in the spring flowers only one starts from each axil, in the autumn forms there are usually two or more. *V. pedata* apparently never produces cleistogamous flowers, but very frequently blossoms a second time in the autumn. Specimens were collected as late as Nov. 5 in full bloom. — A committee was appointed to prepare resolutions urging the necessity of legislative action in regard to the preservation of the Adirondack forests.

Colorado scientific society, Denver.

April 7. — The committee on artesian wells in the neighborhood of Denver made a preliminary report, outlining the basin within which the known flows might be obtained, and giving calculations as to the amount of water available. — Mr. E. LeNeve Foster described a possibly new mineral from Mexico, having approximately the formula, $4 \text{ Ag}_2\text{S} \cdot 6 \text{ PbS} \cdot 5 \text{ Bi}_2\text{S}_3$. It occurs as a massive cement to a granu-